

BIOCHEMISTRY, BA (L&S)

REQUIREMENTS

UNIVERSITY GENERAL EDUCATION REQUIREMENTS

All undergraduate students at the University of Wisconsin–Madison are required to fulfill a minimum set of common university general education requirements to ensure that every graduate acquires the essential core of an undergraduate education. This core establishes a foundation for living a productive life, being a citizen of the world, appreciating aesthetic values, and engaging in lifelong learning in a continually changing world. Various schools and colleges will have requirements in addition to the requirements listed below. Consult your advisor for assistance, as needed. For additional information, see the university Undergraduate General Education Requirements (<http://guide.wisc.edu/undergraduate/#requirementsforundergraduatestudytext>) section of the *Guide*.

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| General Education | <ul style="list-style-type: none"> • Breadth–Humanities/Literature/Arts: 6 credits • Breadth–Natural Science: 4 to 6 credits, consisting of one 4- or 5-credit course with a laboratory component; or two courses providing a total of 6 credits • Breadth–Social Studies: 3 credits • Communication Part A & Part B * • Ethnic Studies * • Quantitative Reasoning Part A & Part B * |
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* The mortarboard symbol appears before the title of any course that fulfills one of the Communication Part A or Part B, Ethnic Studies, or Quantitative Reasoning Part A or Part B requirements.

COLLEGE OF LETTERS & SCIENCE DEGREE REQUIREMENTS: BACHELOR OF ARTS (BA)

Students pursuing a bachelor of arts degree in the College of Letters & Science must complete all of the requirements below. The College of Letters & Science allows this major to be paired with either a bachelor of arts or a bachelor of science curriculum.

BACHELOR OF ARTS DEGREE REQUIREMENTS

Mathematics Complete the University General Education Requirements for Quantitative Reasoning A (QR-A) and Quantitative Reasoning B (QR-B) coursework.

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| Language | <ul style="list-style-type: none"> • Complete the fourth unit of a language other than English; OR • Complete the third unit of a language and the second unit of an additional language other than English. |
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| L&S Breadth | <ul style="list-style-type: none"> • 12 credits of Humanities, which must include 6 credits of literature; and • 12 credits of Social Science; and • 12 credits of Natural Science, which must include one 3+ credit Biological Science course and one 3+ credit Physical Science course. |
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Liberal Arts and Science Coursework	Complete at least 108 credits.
Depth of Intermediate/Advanced work	Complete at least 60 credits at the intermediate or advanced level.
Major	Declare and complete at least one major.
Total Credits	Complete at least 120 credits.
UW-Madison Experience	<ul style="list-style-type: none"> • 30 credits in residence, overall; and • 30 credits in residence after the 86th credit.
Quality of Work	<ul style="list-style-type: none"> • 2,000 in all coursework at UW–Madison • 2,000 in Intermediate/Advanced level coursework at UW–Madison

NON-L&S STUDENTS PURSUING AN L&S MAJOR

Non-L&S students who have permission from their school/college to pursue an additional major within L&S only need to fulfill the major requirements. They do not need to complete the L&S Degree Requirements above.

REQUIREMENTS FOR THE MAJOR MATHEMATICS

Mathematics Requirements

Code	Title	Credits
Complete one of the following options:		
MATH 221 & MATH 222	Calculus and Analytic Geometry 1 and Calculus and Analytic Geometry 2	9
MATH 171 & MATH 217 & MATH 222	Calculus with Algebra and Trigonometry I and Calculus with Algebra and Trigonometry II and Calculus and Analytic Geometry 2	14

CHEMISTRY

General Chemistry

Code	Title	Credits
Complete one sequence:		
CHEM 103 & CHEM 104	General Chemistry I and General Chemistry II	9
CHEM 109	Advanced General Chemistry	5
CHEM 115 & CHEM 116	Chemical Principles I and Chemical Principles II (satisfies both general and analytical chemistry requirements)	10

Organic Chemistry

Code	Title	Credits
Complete All:		
CHEM 343	Organic Chemistry I	3
CHEM 344	Introductory Organic Chemistry Laboratory	2
CHEM 345	Organic Chemistry II	3

Analytical Chemistry

Code	Title	Credits
Complete one:		
CHEM 327	Fundamentals of Analytical Science	4
CHEM 329	Fundamentals of Analytical Science	4
CHEM 116	Chemical Principles II (satisfies both general and analytical chemistry requirements)	5

Physical Chemistry

Code	Title	Credits
Complete one:		
CHEM 665	Biophysical Chemistry (Recommended)	3
CHEM 561 & CHEM 563	Physical Chemistry I and Physical Chemistry Laboratory I	4

BIOLOGY

Students must complete either Option A (introductory + upper-level biology), or Option B (biocore), for 16 total credits of biological science coursework.

Option A (Introductory and Upper-Level Biology)**Option A Introductory Biology**

Code	Title	Credits
Complete one of the following introductory biology options:		
BIOLOGY/BOTANY/ ZOOLOGY 151 & BIOLOGY/ BOTANY/ ZOOLOGY 152	Introductory Biology and Introductory Biology (recommended)	10
BIOLOGY/ ZOOLOGY 101 & BIOLOGY/ ZOOLOGY 102 & BOTANY/ BIOLOGY 130	Animal Biology and Animal Biology Laboratory and General Botany	10

And Option A Upper-Level Biology

At least 6 credits of upper-level biological science coursework are required (to achieve 16 total credits—more than 6 credits may be required if introductory biology totals less than 10 credits due to transfer credits). Select from the course list below. To see courses offered in specific upcoming semesters, please see the biochemistry website (https://biochem.wisc.edu/undergraduate_program/advanced-biology-courses-undergraduate-program/).

Important: A course may not double count in both the "upper-level biology" and the "biochemistry" requirements for the major. Biochemistry courses on this list can count only for

"upper-level biology" if they are above-and-beyond what is needed to fulfill the "biochemistry" portion of the major. For example, if students have taken BIOCHEM 501 (<http://guide.wisc.edu/search/?P=BIOCHEM%20501>), they will need one advanced biochemistry elective to fulfill the biochemistry requirement, and then any additional biochemistry courses taken can count for upper-level biology.

Code	Title	Credits
ANAT&PHY 335	Physiology	5
ANAT&PHY 337	Human Anatomy	3
ANAT&PHY 435	Fundamentals of Human Physiology	5
AGRONOMY 300	Cropping Systems	3
AGRONOMY 302	Forage Management and Utilization	3
AGRONOMY/HORT/ SOIL SCI 326	Plant Nutrition Management	3
AGRONOMY/ HORT 338	Plant Breeding and Biotechnology	3
AGRONOMY/ BOTANY/HORT 339	Plant Biotechnology: Principles and Techniques I	4
AGRONOMY/ BOTANY/HORT 340	Plant Cell Culture and Genetic Engineering	3
AGRONOMY/A A E/ NUTR SCI 350	World Hunger and Malnutrition	3
AGRONOMY/ BOTANY/ SOIL SCI 370	Grassland Ecology	3
AGRONOMY 377	Global Food Production and Health	3
AGRONOMY/ HORT 501	Principles of Plant Breeding	3
AGRONOMY/ ATM OCN/ SOIL SCI 532	Environmental Biophysics	3
AN SCI/ FOOD SCI 305	Introduction to Meat Science and Technology	4
AN SCI/DY SCI/ NUTR SCI 311	Comparative Animal Nutrition	3
AN SCI 314	Poultry Nutrition	3
AN SCI/DY SCI 320	Animal Health and Disease	3
AN SCI/DY SCI 361	Introduction to Animal and Veterinary Genetics	2
AN SCI/DY SCI 362	Veterinary Genetics	2
AN SCI/DY SCI 363	Principles of Animal Breeding	2
AN SCI/DY SCI 370	Livestock Production and Health in Agricultural Development	3
AN SCI/DY SCI 414	Ruminant Nutrition & Metabolism	3
AN SCI 415	Application of Monogastric Nutrition Principles	2
AN SCI 431	Beef Cattle Production	3
AN SCI 432	Swine Production	3
AN SCI/DY SCI 434	Reproductive Physiology	3
AN SCI 503	Avian Physiology	3
AN SCI 508	Poultry Products Technology	3
AN SCI 511	Breeder Flock and Hatchery Management	3
AN SCI 512	Management for Avian Health	3

AN SCI/ FOOD SCI 515	Commercial Meat Processing	2	BOTANY 300	Plant Anatomy	4
AN SCI/F&W ECOL/ ZOOLOGY 520	Ornithology	3	BOTANY 305	Plant Morphology and Evolution	4
AN SCI/F&W ECOL/ ZOOLOGY 521	Birds of Southern Wisconsin	3	BOTANY 330	Algae	3
AN SCI 610	Quantitative Genetics	3	BOTANY/ PL PATH 332	Fungi	4
AN SCI/ NUTR SCI 626	Experimental Diet Design	1	BOTANY/ AGRONOMY/ HORT 339	Plant Biotechnology: Principles and Techniques I	4
B M E/MED PHYS/ PHMCOL- M/PHYSICS/ RADIOL 619	Microscopy of Life	3	BOTANY 400	Plant Systematics	4
BIOCHEM/ NUTR SCI 510	Nutritional Biochemistry and Metabolism	3	BOTANY 401	Vascular Flora of Wisconsin	4
BIOCHEM/ NUTR SCI 560	Principles of Human Disease and Biotechnology	2	BOTANY/ F&W ECOL 402	Dendrology: Woody Plant Identification and Ecology	3
BIOCHEM 570		3	BOTANY/ANTHRO/ ZOOLOGY 410	Evolutionary Biology	3
BIOCHEM/ M M & I 575	Biology of Viruses	2	BOTANY 422	Plant Geography	3
BIOCHEM 601	Protein and Enzyme Structure and Function	2	BOTANY/ F&W ECOL 455	The Vegetation of Wisconsin	4
BIOCHEM/B M I/ BMOLCHEM/ MATH 609	Mathematical Methods for Systems Biology	3	BOTANY/ F&W ECOL/ ZOOLOGY 460	General Ecology	4
BIOCHEM/ GENETICS/ MICROBIO 612	Prokaryotic Molecular Biology	3	BOTANY/ENTOM/ ZOOLOGY 473	Plant-Insect Interactions	3
BIOCHEM/ NUTR SCI 619	Advanced Nutrition: Intermediary Metabolism of Macronutrients	3	BOTANY/AMER IND/ ANTHRO 474	Ethnobotany	3-4
BIOCHEM/ GENETICS/ MD GENET 620	Eukaryotic Molecular Biology	3	BOTANY 500	Plant Physiology	3-4
BIOCHEM/ BOTANY 621	Plant Biochemistry	3	BOTANY/ENTOM/ PL PATH 505	Plant-Microbe Interactions: Molecular and Ecological Aspects	3
BIOCHEM 625	Mechanisms of Action of Vitamins and Minerals	2	BOTANY/ PL PATH 563	Phylogenetic Analysis of Molecular Data	3
BIOCHEM/ NUTR SCI 645	Molecular Control of Metabolism and Metabolic Disease	3	BOTANY/HORT/ SOIL SCI 626	Mineral Nutrition of Plants	3
BSE 349	Quantitative Techniques for Biological Systems	3	BOTANY/ENVIR ST/ F&W ECOL/ ZOOLOGY 651	Conservation Biology	3
BSE 364	Engineering Properties of Food and Biological Materials	3	BOTANY/ GENETICS/M M & I/ PL PATH 655	Biology and Genetics of Fungi	3
BSE 365	Measurements and Instrumentation for Biological Systems	3	BOTANY/ LAND ARC 670	Adaptive Restoration Lab	2
BSE/ENVIR ST 367	Renewable Energy Systems	3	CHEM 575	Advanced Topics in Chemistry (Topics in Chemical Biology)	1-4
BSE 460	Biorefining: Energy and Products from Renewable Resources	3	CRB 625	Stem Cell Seminar	1
BSE 461	Food and Bioprocessing Operations	3	CRB 640	Fundamentals of Stem Cell and Regenerative Biology	3
BSE 472	Sediment and Bio-Nutrient Engineering and Management	3	CRB 650	Molecular and Cellular Organogenesis	3
BMOLCHEM/ MICROBIO 668	Microbiology at Atomic Resolution	3	DY SCI 378	Lactation Physiology	3
B M I/STAT 541	Introduction to Biostatistics	3	DY SCI 535	Dairy Farm Management Practicum	3
B M I/ COMP SCI 576	Introduction to Bioinformatics	3	ENTOM/ ZOOLOGY 302	Introduction to Entomology	4
			ENTOM 321	Physiology of Insects	3
			ENTOM 331	Taxonomy of Mature Insects	4
			ENTOM 351	Principles of Economic Entomology	3
			ENTOM/ ZOOLOGY 371	Medical Entomology: Biology of Vector and Vector-borne Diseases	3

ENTOM 432	Taxonomy and Bionomics of Immature Insects	4	F&W ECOL/ A A E 652	Decision Methods for Natural Resource Managers	3
ENTOM 500		2	F&W ECOL 655	Animal Population Dynamics	3
ENTOM/ ZOOLOGY 540	Theoretical Ecology	3	GEN&WS 533	Special Topics in Gender and Biology	3
ENTOM/GENETICS/ ZOOLOGY 624	Molecular Ecology	3	GENETICS 466	Principles of Genetics	3
ENVIR ST/ LAND ARC 361	Wetlands Ecology	3	GENETICS 467	General Genetics 1	3
ENVIR ST/ POP HLTH 471	Introduction to Environmental Health	3	GENETICS 468	General Genetics 2	3
ENVIR ST/ POP HLTH 502	Air Pollution and Human Health	3	GENETICS 525	Epigenetics	3
ENVIR ST/ F&W ECOL 515	Natural Resources Policy	3	GENETICS 545	Genetics Laboratory	2
ENVIR ST/ ATM OCN 520	Bioclimatology	3	GENETICS/ HORT 550	Molecular Approaches for Potential Crop Improvement	3
FOOD SCI/ MICROBIO 324	Food Microbiology Laboratory	2	GENETICS/ MD GENET 565	Human Genetics	3
FOOD SCI/ MICROBIO 325	Food Microbiology	3	GENETICS 566	Advanced Genetics	3
FOOD SCI 410	Food Chemistry	3	HORT 320	Environment of Horticultural Plants	3
FOOD SCI 440	Principles of Food Engineering	3	HORT/ AGRONOMY 501	Principles of Plant Breeding	3
FOOD SCI 511	Chemistry and Technology of Dairy Products	3	M M & I 301	Pathogenic Bacteriology	2
FOOD SCI 514	Integrated Food Functionality	4	M M & I 341	Immunology	3
FOOD SCI 550	Fermented Foods and Beverages	2	M M & I/ENTOM/ PATH-BIO/ ZOOLOGY 350	Parasitology	3
FOOD SCI 611	Chemistry and Technology of Dairy Products	3	M M & I/PATH- BIO 528	Immunology	3
F&W ECOL 300	Forest Measurements	4	M M & I 554	Emerging Infectious Diseases and Bioterrorism	2
F&W ECOL 306	Terrestrial Vertebrates: Life History and Ecology	4	MED PHYS/ H ONCOL 410	Radiobiology	2-3
F&W ECOL 318	Principles of Wildlife Ecology	3	MED PHYS/ B M E/H ONCOL/ PHYSICS 501	Radiation Physics and Dosimetry	3
F&W ECOL/ ZOOLOGY 335	Human/Animal Relationships: Biological and Philosophical Issues	3	MICROBIO 303	Biology of Microorganisms	3
F&W ECOL/ ENVIR ST/ ZOOLOGY 360	Extinction of Species	3	MICROBIO 304	Biology of Microorganisms Laboratory	2
F&W ECOL 379	Principles of Wildlife Management	3	MICROBIO 305	Critical Analyses in Microbiology	1
F&W ECOL 401	Physiological Animal Ecology	3	MICROBIO 330		3
F&W ECOL 404		3	MICROBIO/AN SCI/ BOTANY 335	The Microbiome of Plants, Animals, and Humans	3
F&W ECOL 410	Principles of Silviculture	3	MICROBIO 345	Introduction to Disease Biology	3
F&W ECOL 415	Tree Physiology	3	MICROBIO 357	General Bioinformatics for Microbiologists	3
F&W ECOL/ SURG SCI 548	Diseases of Wildlife	3	MICROBIO/ SOIL SCI 425	Environmental Microbiology	3
F&W ECOL 550	Forest Ecology	3	MICROBIO 450	Diversity, Ecology and Evolution of Microorganisms	3
F&W ECOL 561	Wildlife Management Techniques	3	MICROBIO 470	Microbial Genetics & Molecular Machines	3
F&W ECOL/ LAND ARC/ ZOOLOGY 565	Principles of Landscape Ecology	2	MICROBIO 520	Planetary Microbiology: What Life Here Tells Us About Life Out There	3
F&W ECOL 590	Integrated Resource Management	3	MICROBIO/ SOIL SCI 523	Soil Microbiology and Biochemistry	3
F&W ECOL 632		1	MICROBIO 525	Field Studies of Planetary Microbiology and Life in the Universe	3
F&W ECOL 633		1	MICROBIO 526	Physiology of Microorganisms	3
F&W ECOL 634		1			

MICROBIO 527	Advanced Laboratory Techniques in Microbiology	2	ZOOLOGY 425	Behavioral Ecology	3
MICROBIO 551	Capstone Research Project in Microbiology	2	ZOOLOGY 430	Comparative Anatomy of Vertebrates	5
MICROBIO 607		3	ZOOLOGY 470	Introduction to Animal Development	3
MICROBIO 626	Microbial and Cellular Metabolomics	3	ZOOLOGY 504		3-5
MICROBIO 632		2	ZOOLOGY/ ENVIR ST 510	Ecology of Fishes	3
NTP/ NEURODPT 610	Cellular and Molecular Neuroscience	4	ZOOLOGY/ ENVIR ST 511	Ecology of Fishes Lab	2
NTP/NEURODPT/ PSYCH 611	Systems Neuroscience	4	ZOOLOGY/ PSYCH 523	Neurobiology	3
NTP/ NEURODPT 629	Molecular and Cellular Mechanisms of Memory	3	ZOOLOGY/ GEOSCI 541	Paleobiology	3
NUTR SCI 332	Human Nutritional Needs	3	ZOOLOGY/ GEOSCI 542	Invertebrate Paleontology	3
NUTR SCI 431	Nutrition in the Life Span	3	ZOOLOGY 555	Laboratory in Developmental Biology	3
ONCOLOGY 401	Introduction to Experimental Oncology	2	ZOOLOGY 570	Cell Biology	3
ONCOLOGY/ M&ENVTOX/ PHM SCI/PHMCOL- M/POP HLTH 625	Toxicology I	3	ZOOLOGY 603	Endocrinology	3-4
PHM SCI 310	Drugs and Their Actions	2	ZOOLOGY 611	Comparative and Evolutionary Physiology	3
PHM SCI/B M E 430	Biological Interactions with Materials	3	ZOOLOGY 612	Comparative Physiology Laboratory	2
PHYSICS/B M E/ MED PHYS/ PHMCOL-M/ RADIOL 619	Microscopy of Life	3	ZOOLOGY/ ANTHRO/NTP/ PSYCH 619	Biology of Mind	3
PL PATH 300	Introduction to Plant Pathology	4	ZOOLOGY 625	Development of the Nervous System	2
PL PATH/ SOIL SCI 323	Soil Biology	3			
PL PATH 517	Plant Disease Resistance	2-3			
PL PATH 558		3			
PL PATH 559	Diseases of Economic Plants	3			
PL PATH 602	Ecology, Epidemiology and Control of Plant Diseases	3			
PL PATH 622	Plant-Bacterial Interactions	2-3			
PL PATH/M M & I/ ONCOLOGY 640	General Virology-Multiplication of Viruses	3			
PSYCH 454	Behavioral Neuroscience	3			
PSYCH 513	Hormones, Brain, and Behavior	4			
PSYCH 612	Neuropharmacology	3			
SOIL SCI/ F&W ECOL 451	Environmental Biogeochemistry	3			
SOIL SCI 623		3			
SOIL SCI/ CIV ENGR/ M&ENVTOX 631	Toxicants in the Environment: Sources, Distribution, Fate, & Effects	3			
ZOOLOGY 300	Invertebrate Biology and Evolution	3			
ZOOLOGY 301	Invertebrate Biology and Evolution Lab	2			
ZOOLOGY 304	Marine Biology	2			
ZOOLOGY/ ENVIR ST 315	Limnology-Conservation of Aquatic Resources	2			
ZOOLOGY 316	Laboratory for Limnology-Conservation of Aquatic Resources	2-3			

Option B (Biocore)

Biocore is an honors-level, integrated sequence of lecture and lab courses that covers introductory and intermediate biology topics. Students must apply and be accepted to the program to take BIOCORE classes.

Code	Title	Credits
Complete these lecture courses:		
BIOCORE 381	Evolution, Ecology, and Genetics	3
BIOCORE 383	Cellular Biology	3
BIOCORE 485	Principles of Physiology	3
BIOCORE 587	Biological Interactions	3
Complete two of these lab classes:		
BIOCORE 382	Evolution, Ecology, and Genetics Laboratory	4
BIOCORE 384	Cellular Biology Laboratory	
BIOCORE 486	Principles of Physiology Laboratory	

Total Credits **16**

PHYSICS (CALCULUS-BASED)

Physics Requirements

Code	Title	Credits
Complete one of the following options: ¹		
PHYSICS 207 & PHYSICS 208	General Physics and General Physics (recommended)	10
PHYSICS 201 & PHYSICS 202	General Physics and General Physics	10

BIOCHEMISTRY

One set of introductory coursework and the capstone course are required, for a total of three BIOCHEM courses.

Introductory Courses

Code	Title	Credits
Select one of the following options:		
BIOCHEM 507 & BIOCHEM 508	General Biochemistry I and General Biochemistry II (recommended)	6-7

OR

BIOCHEM 501	Introduction to Biochemistry	3
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And one of the following advanced biochemistry electives:

BIOCHEM/ NUTR SCI 510	Nutritional Biochemistry and Metabolism	
BIOCHEM/ NUTR SCI 560	Principles of Human Disease and Biotechnology	
BIOCHEM 570		
BIOCHEM/ M M & I 575	Biology of Viruses	
BIOCHEM 601	Protein and Enzyme Structure and Function	
BIOCHEM/B M I/ BMOLCHEM/ MATH 609	Mathematical Methods for Systems Biology	
BIOCHEM/ GENETICS/ MICROBIO 612	Prokaryotic Molecular Biology	
BIOCHEM/ GENETICS/ MD GENET 620	Eukaryotic Molecular Biology	
BIOCHEM/ BOTANY 621	Plant Biochemistry	
BIOCHEM 625	Mechanisms of Action of Vitamins and Minerals	
BIOCHEM/ NUTR SCI 645	Molecular Control of Metabolism and Metabolic Disease	

Capstone

Code	Title	Credits
BIOCHEM 551	Biochemical Methods	4

Total Credits **4**

RESIDENCE AND QUALITY OF WORK

- 2.000 GPA in all BIOCHEM and major courses
- 2.000 GPA on at least 15 upper-level major credits in Residence.²
- 15 credits in BIOCHEM, taken on campus

¹ Students should consult with their advisor to discuss options if they have credit for PHYSICS 103 (<http://guide.wisc.edu/search/?P=PHYSICS%20103>) and PHYSICS 104 (<http://guide.wisc.edu/search/?P=PHYSICS%20104>).

² Major courses numbered 300-699 are considered Upper-Level in the major for purposes of this requirement.

HONORS IN THE MAJOR

Students may declare Honors in the Biochemistry Major in consultation with their Biochemistry undergraduate advisor. To be admitted to Honors in the Major in Biochemistry, students must have declared a major in Biochemistry and have a 3.300 overall university GPA.

HONORS IN THE MAJOR IN BIOCHEMISTRY: REQUIREMENTS

To earn honors in the major in biochemistry, students must satisfy the requirements for the major (above) as well as the following requirements. All courses used for honors in the major requirements must receive "B" or better grades to fulfill requirements.

- Earn a 3.300 University GPA
- Earn a 3.300 GPA for all BIOCHEM courses, and all courses accepted in the major
- Complete BIOCHEM 507 and BIOCHEM 508 for Honors
- Complete a two-semester Senior Honors Thesis for 6 credits total
- Complete at least 14 credits of any combination of the following coursework:
 - Honors courses that would fulfill the Biology or Biochemistry requirements in the major (see above)
 - Statistics coursework (does not need to be taken for honors): STAT 301, STAT 371, or STAT/B M I 541
 - Biochemistry elective coursework beyond the major requirements (does not need to be taken for honors): NUTR SCI/BIOCHEM 510, BIOCHEM/NUTR SCI 560, BIOCHEM 570 M M & I/BIOCHEM 575, BIOCHEM 601, MATH/B M I/BIOCHEM/BMOLCHEM 609, MICROBIO/BIOCHEM/GENETICS 612, MD GENET/BIOCHEM/GENETICS 620, BOTANY/BIOCHEM 621, BIOCHEM 625, BIOCHEM/NUTR SCI 645
 - Honors coursework in MATH, CHEM, or PHYSICS, from the list below:

Math

Code	Title	Credits
MATH 341	Linear Algebra	3
MATH 375	Topics in Multi-Variable Calculus and Linear Algebra	5
MATH 376	Topics in Multi-Variable Calculus and Differential Equations	5
MATH 521	Analysis I	3
MATH 522	Analysis II	3
MATH 541	Modern Algebra	3
MATH 542	Modern Algebra	3

Chemistry

Code	Title	Credits
CHEM 109	Advanced General Chemistry	5
CHEM 115	Chemical Principles I	5
CHEM 116	Chemical Principles II	5
CHEM 343	Organic Chemistry I	3
CHEM 345	Organic Chemistry II	3

CHEM 344	Introductory Organic Chemistry Laboratory	2
CHEM 329	Fundamentals of Analytical Science	4
CHEM 547	Advanced Organic Chemistry	3
CHEM 561	Physical Chemistry I	3
CHEM 565		
CHEM 563	Physical Chemistry Laboratory I	1
CHEM 562	Physical Chemistry II	3
CHEM 564	Physical Chemistry Laboratory II	1

Physics

Code	Title	Credits
PHYSICS 201	General Physics	5
PHYSICS 202	General Physics	5
PHYSICS 207	General Physics	5
PHYSICS 208	General Physics	5
PHYSICS 241	Introduction to Modern Physics	3
PHYSICS 247	A Modern Introduction to Physics	5
PHYSICS 248	A Modern Introduction to Physics	5
PHYSICS 249	A Modern Introduction to Physics	4

UNIVERSITY DEGREE REQUIREMENTS

Total Degree To receive a bachelor's degree from UW–Madison, students must earn a minimum of 120 degree credits. The requirements for some programs may exceed 120 degree credits. Students should consult with their college or department advisor for information on specific credit requirements.

Residency Degree candidates are required to earn a minimum of 30 credits in residence at UW–Madison. "In residence" means on the UW–Madison campus with an undergraduate degree classification. "In residence" credit also includes UW–Madison courses offered in distance or online formats and credits earned in UW–Madison Study Abroad/Study Away programs.

Quality of Work Undergraduate students must maintain the minimum grade point average specified by the school, college, or academic program to remain in good academic standing. Students whose academic performance drops below these minimum thresholds will be placed on academic probation.